

OFF THE HOOF

Kentucky Beef Newsletter May 2018

Published Monthly by Dr. Les Anderson, Beef Extension Specialist, Department of Animal & Food Science, University of Kentucky

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Timely Tips

Dr. Roy Burriss, Beef Extension Professor, University of Kentucky

Spring-Calving Cow Herd

- Continue supplying a high magnesium mineral until daytime temperatures are consistently above 60 degrees F. This has been a cool spring so far.
- Improve or maintain body condition (BCS 5) of cows before breeding season starts, if necessary.
- Bulls should have a breeding soundness evaluation (BSE) well before the breeding season. They should also receive their annual booster vaccinations and be dewormed.
- Schedule spring of “turn-out” working in late April or early May-at the end of calving season and before the start of breeding season. Consult with your veterinarian about vaccines and health products for your herd.

“Turn-out” working for the cow herd *may* include:

- Prebreeding vaccinations
- Deworming
- Replacing lost identification tags
- Sort cows into breeding groups, if using more than one bull
- Insecticide eartags (best to wait until fly population builds up)

“Turn-out” working of calves may include:

- Vaccinate for IBR-PI3, Clostridial diseases and Pinkeye
- Dehorn, if needed (can be done with electric dehorner and fly repellent during fly season)
- Castrate and implant male feeder calves (if not done at birth)
- Deworm
- Insecticide eartags

- Consider breeding yearling replacement heifers one heat cycle (about 21 days) earlier than cows for “Head-start” calving. Mate to known calving-ease bulls.
- Record identification of all cows and bulls in each breeding group.
- Begin breeding cows no later than mid-May, especially if they are on high endophyte fescue. Cows should be in good condition so that conception occurs prior to periods of extreme heat.
- Choose best pastures for grazing during the breeding season. Select those with the best stand of clover and the lowest level of the fescue endophyte, if known. Keep these pastures vegetative by grazing or clipping. *High quality pastures are important for a successful breeding season.*
- If using **artificial insemination**:
 - Use an experienced inseminator.
 - Make positive identification of cows and semen used. This will permit accurate records on date bred, return to heat, calving date and sire.
 - Good handling facilities and gentle working of the cows are essential.
 - Choose AI sires that will meet your goals and resist the temptation to get your cows bigger.
- Observe breeding pastures often to see if bulls are working. Record cows’ heat dates and then check 18-21 days later, for return to heat.

Fall-Calving Herd

- Pregnancy check the cow herd. Remove open cows at weaning time.
- Plan marketing program for calves. Consider various options, such as maintaining ownership and backgrounding in a grazing program, or precondition and sell in a CPH-45 feeder calf sale.
- Initiate fly control for the cows when fly population builds up.
- Calves may be weaned anytime now but you can take advantage of the spring grass by leaving them on the cow a while or weaning and grazing.

Stockers

- Keep calves on good pasture and rotate pastures rapidly during periods of lush growth. Manage to keep pastures vegetative for best performance.
- Provide mineral mix with an ionophore.
- Implant as needed.
- Control internal and external parasites.

General

- Harvest hay. *Work around the weather and cut early before plants become too mature. Harvesting forage early is the key to nutritional quality.* Replenish your hay supply!
- Rotate pastures as needed to keep them vegetative.
- Clip pastures to prevent seedhead formation on fescue and to control weeds.
- Seed warm season grasses this month.

Blast from the Past

Dr. Roy Burris, Beef Extension Professor, University of Kentucky

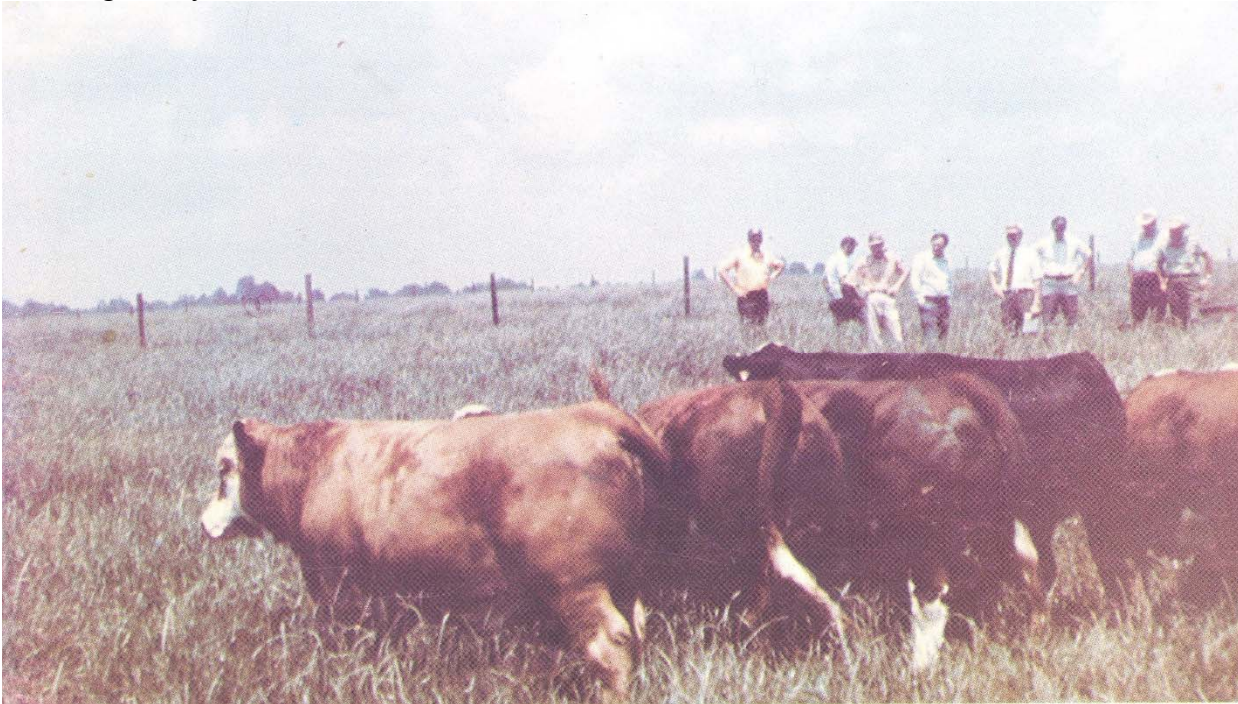
It was 1974 and I had just started my career as a beef cattle researcher for Mississippi State University. I was part of projects on grazing systems and crossbreeding but was also starting a new project on finishing cattle in south Mississippi. We were in the process of building a research feedlot but I needed to get something going right away. Fortunately, at that time, finishing cattle on grass was receiving a lot of attention in the southern

region. Since I had ryegrass and cattle, one of my first trials was “Finishing Steers on Ryegrass-clover Pastures with Supplemental Grain”. Some of the things that we learned then are still relevant 42 years later.

Steers were grazed for 150 days during the winter and received either (1) no grain, (2) one percent bodyweight (BW) of cracked corn throughout, or (3) cracked corn the last 64 days. Dr. Neil Bradley (UK) always said that it takes 20 bushels of corn to “finish” cattle. One percent BW for 150 days would be in that range. Grain fed calves did tend to marble better and have greater fat thickness and yield grades.

My first “problem” was that a local producer told my boss that cracked corn was too low in protein for the steers to gain. I patiently explained (nah, I didn’t) that since the ryegrass-clover was very high in protein, they needed energy to fatten - not protein. But I did learn that most producers are hung up on crude protein levels when buying feed and pay little attention to energy levels. That is still true today.

The steers (shown in the picture) don’t look much like cattle do now. These steers were not straight black or large framed. In fact they were harvested at 900 lbs.! Marbling is, to a large degree, a function of maturity. In other words, once a calve stops growing, it then begins to lay on external and, hopefully, internal fat (marbling). Thus, early maturing (smaller framed) cattle might work better for forage diets. Cattle on this trial averaged slight-plus marbling (enough to grade USDA Select plus). As I bred the cattle for more size and growth, it became more difficult to maintain marbling ability. We now look for those “outliers” that possess extra marbling ability.



Breeders, in my humble opinion, seem to sometimes get caught up in breeding for “outliers” instead of breeding for efficiency and uniformity and in the process may lose some of the functionality of the cow herd. I know it sounds trivial and simple but you, or your source of breeding animals, should rear them under similar conditions in which you expect their offspring to be productive. Farm planners say “fit each acre to its best use” and I say fit your breeding program to the intended purpose for your cattle.

What about yellow fat on pasture cattle? Fat color in this trial averaged creamy white instead of yellow. Other workers had reported that yellow fat was not a big problem when grazing winter annual pastures like ryegrass. When the T-bone, round and rib-eyes from these steers were placed in supermarkets and grouped together (not mixed with feedlot beef), their sales showed no reluctance of consumers to purchase cattle finished on winter pasture.

I soon learned that the problem with building a market for pasture-fed beef is the seasonality of supply. Ideally, grazing should be year-round so that cattle can be harvested weekly throughout the year. We need to re-think finishing on fescue and look at other grasses and legumes so that we can approach year-round grazing on high quality forages.

Finally, I have also learned that there is no problem with niche markets. Whatever you can do to successfully market your product is great. We don't dictate what people eat – we fill orders. Simple as that. If the consuming public demands beef produced on grass or in the feedlot or any other way, we can supply them. Hopefully we do it at a profit so that our operations are sustainable. Something to think about – we need our domestic demand for beef to be strong enough that we can always be sustainable - because foreign markets can't always be relied upon.

Short Pastures and Supplementation Considerations

Jeff Lehmkuhler, Extension Beef Cattle Specialists, University of Kentucky

Several county Ag Agents have reported producers asking what to do supplement-wise for grazing livestock with the slow pasture growth this spring. A lot of this is related to the fact that we are roughly 100 growing degree days less this year than the same time frame a year ago. Combine this with the wet weather leading to muddy feeding conditions, producers were happy to see cows begin to pick grass. Low hay stocks also contributed to producers pulling hay away a bit prematurely. Cooler temperatures has resulted in slow pasture forage growth and cows are nipping it off faster than it is growing. This situation has led to several questions regarding supplementing grazing cattle under these conditions and I'll try to share a few things to consider.

- 1) No free lunch - Grazing energy expenditure based on research is significantly greater than the energy required to walk, stand, and other activities. A cow grazing an acre would expend more energy than simply walking that same distance. The energy to raise the head, prehend forage, chew and swallow are all energetic costs.
- 2) Low forage availability - The National Research Council (NRC) beef cattle nutrient recommendations publication has reviewed the scientific literature related to grazing energy expenditure. Models have been developed to account for energy expended during grazing in relation to forage dry matter availability (see previous Grazing News article <https://grazer.ca.uky.edu/content/when-start-feeding-hay>). When forage dry matter (DM) availability falls below 2,000 lb per acre or approximately less than 6 inches in height with 90% ground cover, dry matter intake may be reduced which will negatively impact performance. Maintaining pasture sward to be greater than 3-4 inches in height should ensure there is at least 1,000-1,200 lbs DM/acre pasture forage availability. At 1,000-1,200 lbs DM/acre, research indicates DM intakes will be about 90% of normal.
- 3) Providing Free-choice Supplements when pasture is limited – Offering free-choice supplements during low forage availability is a situation that in many instances can lead to digestive and metabolic disorders. When forages are limited, over consumption of free-choice supplements can occur. The name is important "supplement" not "replacement". In many free-choice supplement toxicity cases, it has almost always occurred when forage availability was limited. This same over-consumption can occur with liquids such as molasses and distillers condensed syrup. Use free-choice supplements when forage availability is not severely limited for best results.
- 4) Hay - Hay would be the preferred "replacement" to pasture forages. Even though the lower sugar content and other factors such as rot and mold will make it less palatable to grazing livestock, hay is the most logical substitute. Having access to higher quality hay will provide some replacement of pasture forages. Granted the intakes may be low as they seek pasture forage. Low hay intakes of 5-10 lbs of hay intake can replace 25-50 lbs of fresh forage intake. Enticing hay intake could be done by adding liquid molasses to bales while also boosting nutrient content slightly.

5) Supplements - Limit-fed supplements can be used to provide nutrients to cattle grazing pastures that are short, but won't lower their forage DM intakes when forage is limited a great deal. Two intake regulation systems are involved, metabolic and gut fill. Gut fill will often be driving the cattle to graze even though nutritionally they may not need the nutrients. For instance a supplement that is mostly soyhulls, wheat middlings and some corn gluten feed would likely have about 78-80% TDN. Lush, lowly lignified pasture will contain about 65-70% TDN. The math suggests that for an energy exchange, 1 lb of supplement as mentioned would provide the energy of about 1.15 lb of pasture forage DM or lower forage DM needed by about 15%. As forage becomes more mature, lower in quality, the exchange becomes more significant. Consider mature pasture forage that is 58% TDN. It would take 1 lb of supplement would replace about 1.34 lbs of pasture DM. This is a bit simplified, but it should illustrate that the rumen fill sensors could still signal cattle to eat more even though pasture forage intake could be reduced 15-30% while still meeting nutrient needs with supplementation. On another note related to item 3 above is supplementation can provide energy that the cattle need due to the increased physical activity while attempting to fill the rumen with pasture forage. Early spring conditions with lactating cows and low pasture availability can lead to excessive Body Condition loss as the cows activity levels are high. Hilly terrain and steep terrain increases the energy expended.

6) BCS - Don't let spring calving cows lose more than 1 body condition score from calving to breeding IF they calved in a BCS of 5. If they calved at a condition less than 5, they should be maintained and not lose additional condition to ensure optimal breeding opportunity. Thin cows at calving that continue to decline in body condition are at a much higher risk to not rebreed.

7) Economics - Some of the supplements being mentioned by agents as a replacement for pasture forage are in a "form" of convenience. One pays for this convenience. For instance, a cube that may cost \$300/ton that can be poured on the ground with minimal feed loss may be the feed of choice of some. But consider this, a soyhull:corn gluten mix may only cost \$200/ton. That means one could effectively waste 1/3 of the feed on the ground, which is highly unlikely, and still breakeven. Be certain to do your homework on supplements and the nutrient content to purchase nutrients wisely. Some may contain adequate mineral that removing the free-choice mineral supplement will offset the higher feed cost. Supplements may contain higher levels of "roughage" products such as cottonseed hulls, peanut hulls, rice hulls and other low energy feedstuffs to prevent digestive upsets. Find out the nutrient content and suggested feeding rates and compare these to alternative nutrient dense feedstuffs.

As the temperatures increase pasture forages will rebound quickly. Adequate soil moisture will aid in pasture forage growth and this will be a short-lived challenge. However, these same basic principles can apply during forage dormancy induced by heat and low precipitation periods. As mentioned by one of our agents working with a client this spring, don't overlook the potential for consumption of toxic weeds when forage availability is limited. Happy forage managing this spring/summer.

Start Now to Prevent Anaplasmosis This Fall

Michelle Arnold, DVM (Ruminant Extension Veterinarian, UKVDL), University of Kentucky

Anaplasma marginale is an organism that lives in red blood cells and causes the only major "tick-borne" disease in the US affecting cattle production. Although ticks are important for this organism to survive year after year, transmission is by any transfer of infected red blood cells from infected to susceptible cattle. This includes biting insects (mosquitoes, horse flies, stable flies) and/or using blood contaminated instruments such as dehorning tools, ear taggers, castration tools, and implant guns. Probably the most common way it is transmitted is using the same needle on multiple animals when administering vaccines to the herd. The disease usually affects adult cattle in the fall of the year with the majority of cases submitted to the UK Veterinary Diagnostic Lab (UKVDL) starting in late September and continuing through the first 1-2 weeks of November. This organism causes anemia in adult cattle which means there is a very low number of red blood cells in the bloodstream. Lack of red blood cells results in a lack of oxygen to the vital organs in the body. Infected cattle will show signs of weakness, lagging behind, staggering, rapid breathing and sometimes foaming from the mouth. Affected

cattle quit eating and usually there is rapid weight loss noticed by the owner. Cattle may become mean and aggressive due to lack of oxygen to the brain. Death can be rapid, especially with exercise, or cattle may be simply found dead with no symptoms. Typically, several adult animals in a herd will die within a 1-2 week period of time. Younger cattle, especially less than 6 months old, rarely exhibit signs of disease due to active production of new red blood cells (RBCs) in growing calves. Anaplasmosis in animals from 6 months to 2 years of age may be misdiagnosed as pneumonia because symptoms include fever and increased respiratory rate. If an animal (regardless of age) becomes infected and survives, that animal will become a carrier for life. Once they become carriers, they are never sick from the disease again but serve as a reservoir for infection of other, naïve animals. Infected bulls that survive may become infertile for up to a year. Pregnant cows that survive almost always abort the calf they were carrying at the time of infection. Treatment with tetracycline is essential if showing clinical signs of disease. No injectable antibiotic is formally approved for treatment so any form is “extra label” and must be done under veterinary direction. A single intramuscular injection of long acting oxytetracycline at 22 mg/kg of body weight (or 10 mg/lb BW IM) will often stop progression of clinical cases. Severely affected cattle may die due to stress associated with going through the chute. In an outbreak situation, it is recommended to treat all adult cattle in the herd with injectable oxytetracycline, then begin feeding chlortetracycline (CTC) at the high end of the control dose (2mg CTC/lb body weight/head/day) throughout the rest of the vector (fly) season.

So why start in spring to control anaplasmosis if cases of disease are in the fall of the year? Effective control begins in the spring by feeding chlortetracycline (CTC) throughout the vector (fly) season to the herd. Many producers find it easiest to offer CTC in free choice mineral rather than hand feeding CTC daily with Aureomycin®. However, with the advent of the Veterinary Feed Directive (VFD), what once was a quick trip to the feed supply store has become a far more complicated process to get medicated mineral. In order to obtain CTC, a producer must have a written VFD from a licensed veterinarian to present to the feed store before purchase of the product. Complicated rules governing the use of “free choice” products have created confusion on how to legally prescribe and utilize them. FDA updated or “clarified” the VFD regulations in February 2018 in a document entitled: “Questions and Answers: FDA Approved Free-Choice Feeding Options for Anaplasmosis Control in Cattle.” (The complete document may be found at <https://www.fda.gov/AnimalVeterinary/DevelopmentApprovalProcess/ucm589933.htm>). FDA states that “once a veterinarian has determined that anaplasmosis infection exists within a herd, whether or not clinical signs are apparent yet, he/she may write a VFD to direct the use of CTC for controlling the progression of the disease in that herd.” FDA leaves how to make this determination to the discretion of the veterinarian. How long to use the product is also left to the veterinarian’s discretion. A VFD order can be issued for a maximum of 180 day duration of feeding; if needed for a longer period of time, a new VFD order must be written. On the actual VFD form for Chlortetracycline, the veterinarian can only choose the #5 option (see example) for a free choice product. The FDA has approved several proprietary (unpublished) formulations for the use of CTC in free-choice medicated feeds for anaplasmosis control. Proprietary formulations can only be manufactured at a licensed feed mill but the publicly available formulation may be manufactured at any feed mill. For example, the 8000g/ton preparation is an ADM product called “MoorMan’s Special Range Minerals AU 168XFE”. It is legal for free choice consumption, requires a VFD, and will control anaplasmosis when consumed consistently. The 6000g/ton formulation is considered a publicly available recipe for a free-choice medicated mineral but specifications must be followed exactly as stated in the regulation to be legal. If there is any deviation from the formula (except for an approved change of vitamin and trace mineral premix), then it cannot be fed free choice. An example of this formulation is Burkmann CTC 6000 FC Mineral; again this is legal as a free choice mineral, requires a VFD, and effective if consumed consistently. There are many other products commercially available; consult a nutritionist or veterinarian for further recommendations.

Beef and Non-lactating Dairy Cattle: As an aid in control of active infection of anaplasmosis caused by *Anaplasma marginale* susceptible to chlortetracycline when delivered in a free-choice feed.

Drug Concentration:

8000 g/ton (to provide 0.5 to 2.0 mg/lb body weight/day)

[Must use a FDA-approved proprietary formulation.]

6000 g/ton (to provide 0.5 to 2.0 mg/lb body weight/day)

[Must use a FDA-approved proprietary formulation or formulation in 21 CFR 558.128(e)(6).]

5000 g/ton (to provide 0.5 to 2.0 mg/lb body weight/day)

[Must use a FDA-approved proprietary formulation.]

700 g/ton (to provide 0.5 to 2.0 mg/lb body weight/day)

[Must use a FDA-approved proprietary formulation.]

Duration of Feeding: _____ days

Remember, oral CTC is worthless if the animals are not consuming sufficient amounts of medicated feed so producers should monitor intakes. Even when feeding CTC throughout the vector season, some individual animals may become infected and die if they do not enough CTC. Extra-label use of feed additives is illegal and strictly prohibited by producers, veterinarians or nutritionists.

Another method of control is through vaccination. Kentucky is among the list of states approved by the USDA for sale of the anaplasmosis vaccine marketed by University Products LLC of Baton Rouge, La. The vaccine has been used in cows in all stages of pregnancy with no problems being reported. The vaccine recommendations include a 2 dose regimen given 4 weeks apart with annual revaccination required. The primary or initial dose should be given to all bred heifers and young bulls. Bear in mind the vaccine does not prevent infection, it controls clinical disease. In other words, vaccinated animals may become infected and become carriers but will not get sick and/or die. Information may be found at:

<http://www.anaplasmosis.com/home.html>

The UKVDL and the Breathitt Lab recommend the Anaplasmosis cELISA test on serum to detect antibodies indicating infection and carrier status. Blood should be collected in serum (red top) tubes and serum removed by spinning the collection tube down and transferring the serum to a new labeled tube. Transport specimens to the lab as soon as possible after collection (overnight ship with cold packs). It is also recommended that a blood sample (purple top tube) be submitted for a CBC with differential in clinical cases (when the animal is sick) in order to assess the degree of anemia and regeneration and possible identification of the organism in the red cells. Please visit the UKVDL web site for additional information at <http://vdl.uky.edu> or the Breathitt Center web site at <https://breathitt.murraystate.edu/feeschedule/>. Always consult your veterinarian for the best program for your herd.

Kentucky Beef Cattle Market Update

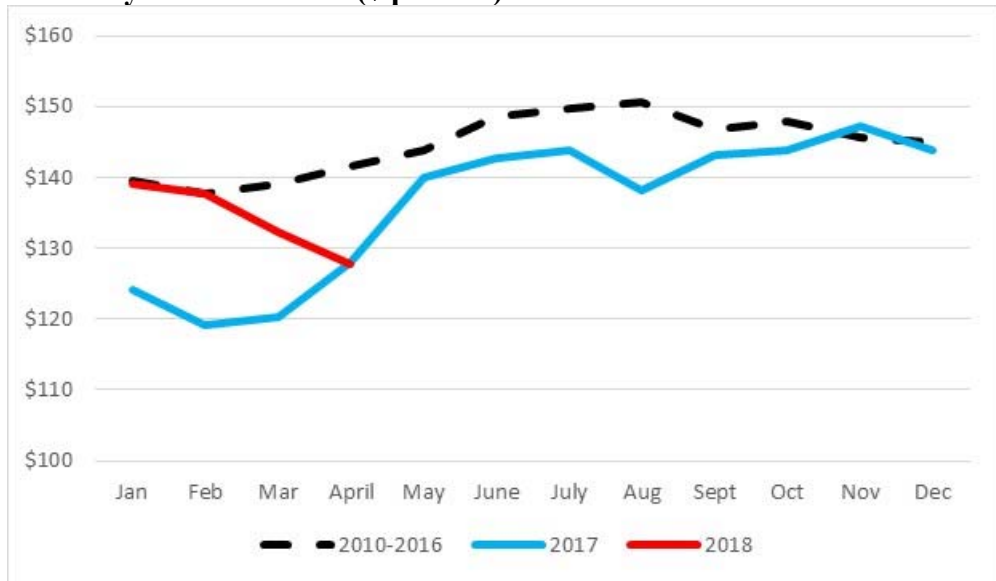
Dr. Kenny Burdine, Livestock Marketing Specialist, University of Kentucky

After focusing on cattle inventory in February, summer stocker programs in March, and fall calving cow-calf profitability in April, I want to focus more specifically on the market this month. Overall, the first four months of 2018 have not been kind to cattle producers. Fed cattle prices fell by more than \$10 per cwt from late February to early April. While slaughter has been up in 2018 (especially for cows), uncertainty about trade was also at play. Cash fed cattle prices had actually improved some by early May.

It's really the expectation for late fall / early winter fed cattle prices that is driving our current feeder cattle market. As I write this (May 9, 2018), December CME© Live Cattle futures had decreased by \$7 to \$8 per cwt from where they were in late winter. This translates back directly into feeder cattle values and I think we have seen this in local markets. Note the drop in prices for 850 lb Medium / Large Frame #1-2 steers in Figure 1.

The April price may be a little deceiving as prices improved through the month, but it definitely makes the point. Lower expectations for fed cattle get bid directly into feeder cattle prices. Slightly higher grain prices have also not helped the feeder cattle picture, but I view this impact as secondary.

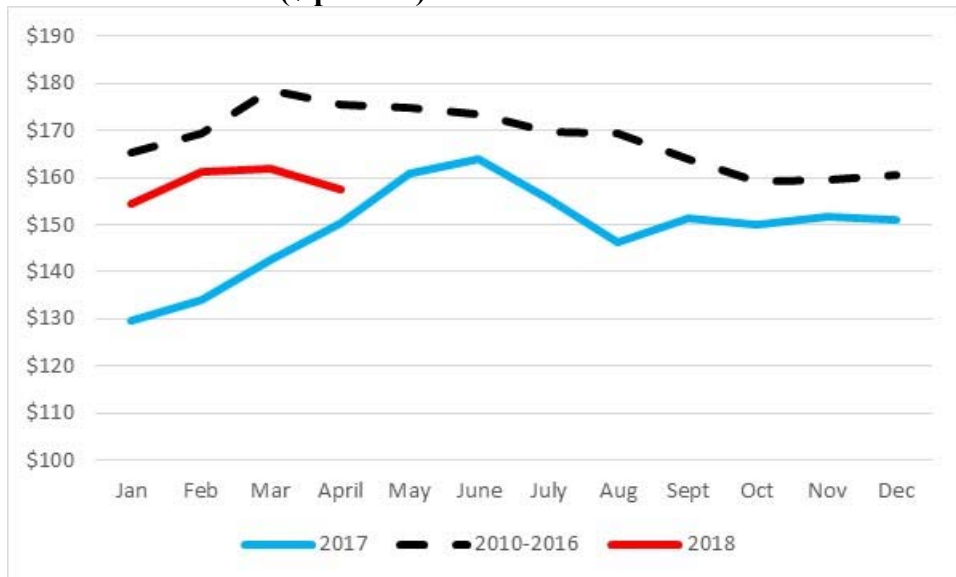
**Figure 1. 850# Medium & Large Frame #1-2 Steers
Kentucky Auction Prices (\$ per cwt)**



Source: USDA-AMS, Livestock Marketing Information Center, Author Calculations

While calf prices have not been hit nearly as hard as heavy feeders, I do think they felt some impacts as well. Calf prices usually improve from February to March as we move closer to grass. The dotted line in Figure 2 shows this over the time period 2010 to 2016. Note the calf market was basically flat from February to March in 2018. Fall CME© feeder cattle prices fell in response to fed cattle markets and this lowered the expected value of spring calves when they came off grass in the fall. I think this worked to offset the typical spring price improvement we see as cost of gain decreases with the start of spring grazing. This was probably especially true in 2018 as forage growth has generally been delayed compared to typical years.

**Figure 2. 550# Medium & Large frame #1-2 Steers
KY Auction Prices (\$ per cwt)**



Source: USDA-AMS, Livestock Marketing Information Center, Author Calculations

While trade discussion has deservedly gotten a lot of attention this spring, I maintain that supplies are our largest problem. The cow herd has grown, so cattle-on-feed numbers have grown, and that has led to increased beef production. Unfortunately, the pace of this growth is likely to be even larger this spring and early summer than was seen in the first quarter. Plus, we are going to see more pork and poultry production as well.

The good news for us in the feeder cattle markets is that the seasonal summer fed cattle lows have already been priced into feeders. Our current market is being driven by fall fed cattle market expectations and the year-over-year increases in beef production will have moderated some by then (they will still be higher). So, while it's difficult to forecast increasing calf prices after initial placement of calves on spring grass, I do think we have a good chance of seeing our market for heavy feeder cattle improve between now and the end of summer.